THE DELAWARE PHOSPHORUS SITE INDEX

USING THE DELAWARE *PHOSPHORUS SITE INDEX* EXCEL SPREADSHEET[1]

Multiple Field Version

The Delaware *Phosphorus Site Index (PSI)* was developed to assess the relative risk of P loss from soil to water by erosion, runoff, and leaching. The *P Site Index* evaluates 12 characteristics, which are separated into two groups: Part A (site factors affecting P transport) and Part B (P source and management factors) to obtain an overall rating of the potential for P loss at a site. By doing this it is possible to obtain separate risk assessments for P transport from a site, based on factors such as topography, hydrology, and proximity to surface waters (Part A), and for P source and management practices (soil test P, fertilizer/manure P management - Part B). Specific information on the Delaware *PSI* is found in the University of Delaware Fact Sheet ST-05, *The Phosphorus Site Index: A Phosphorus Management Strategy for Delaware=s Agricultural Soils*.

The Delaware *PSI-EXCEL Spreadsheet* was designed to allow rapid calculation of the *PSI* for several fields simultaneously, once all information required to determine the *PSI* has been collected or obtained from appropriate references (e.g. county soil survey manuals).

Directions for use of the Delaware PSI-EXCEL Spreadsheet:

To determine the *PSI* for a field, first open the following four *PSI-EXCEL* spreadsheets:

1. *RUSLE PSI:* used to determine the soil erosion factor for the *PSI*, based on the Revised Universal Soil Loss Equation (RUSLE)

2. *PSI-Part A:* used to determine the P site and transport factor (Part A) for the Delaware *PSI.*

3. *PSI-Part B:* used to determine P source and management factor (Part B) for the Delaware *PSI.*

4. *PSI-Final:* summarizes results of calculations from other spreadsheets and provides final interpretation of the Delaware *PSI.*

To move between sheets, click on the window tab at the top of the Excel page and select the desired sheet from the drop-down menu.

Next, enter all data and information needed to calculate the Delaware PSI on each of the spreadsheets, as follows:

Spreadsheet #1: RUSLE-PSI

[1]The Delaware *Phosphorus Site Index* EXCEL spreadsheet was developed by N. J. McCafferty and J. T. Sims (jtsims@udel.edu) of the University of Delaware.

1. *R factor* B Select the R value for the appropriate county from the table in the worksheet and enter the values in the spaces provided.
2. *K factor* B Go to the K worksheet for the appropriate county, find the K value for the appropriate soils, and enter the values in the space provided.
3. *LS factor* B Go to the LS worksheet, use the percent slope and slope length to determine the LS values, and enter them in the spaces provided.
4. *C factor*: - Go to the CS worksheet, find the appropriate cropping systems and corresponding C factors. Enter the C factors in the spaces provided.
5. *P factor* B Go to the P worksheet and find the table with the appropriate support practices. Use the information in the table to find the P factors. Enter the P factors in the spaces provided. If no supporting practices are used, enter a value of 1.0 for the P factors.

Spreadsheet #2: PSI-Part A

1. If Excel asks you to Aupdate linked information@ respond Ayes@.
2. *Surface runoff class* B Use the table provided in this spreadsheet to determine the surface runoff values for the fields and enter those values in the spaces provided.
3. *Subsurface drainage class* B Use the table provided in this spreadsheet to determine the subsurface drainage values for the fields and enter those values in the spaces provided.
4. *Leaching potential* B Use the table provided in this spreadsheet to determine the leaching values for the fields and enter those values in the spaces provided.
5. *Distance from field to surface water* B Use the table provided to determine the distance from edge of field to surface water values, including the use of Ano P application zones@, and enter those values in the space provided.
6. *Priority of surface water* - the approach used to prioritize surface waters in Delaware for the *PSI* has not been finalized. For now a default value of Avery high@ is used for all *PSI* calculations.

Spreadsheet #3: PSI-Part B

1. *Soil test P* B Enter the soil test P values in University of Delaware fertility index values (FIV units) in the spaces provided.
2. *Fertilizer P application rate* B Enter the planned fertilizer P application rates, in units of lbs P_2O_5/acre in the spaces provided.
3. *Fertilizer P application method* B Enter the amount of fertilizer P applied by each application method, in lbs P_2O_5/acre, in the spaces provided. Enter the corresponding application method and timing value (from table in the spreadsheet), for each fertilizer P application that is planned, in the spaces provided.
4. *Organic P application rate* B Enter the planned organic P rate, in units of lbs P_2O_5/acre, in the spaces provided.
5. *Organic P application method* B Enter the amount of organic P applied by each application method, in lbs P_2O_5/acre, in the spaces provided. Enter the corresponding application method and timing value (from table in the spreadsheet), for each organic P application that is planned, in the spaces provided.

Spreadsheet #4: PSI-Final

1. If Excel asks you to Aupdate linked information@ respond Ayes@.
2. The final *Phosphorus Site Index* values are displayed. Use the table provided in the spreadsheet to interpret the *P Site Index* values.